

Serial No. 10/674,926

Filed: 09/30/2003

**CORRECTED AMENDMENT**

**Amendments to the Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (currently amended) An information processing system comprising:  
first and second of levels of a non-volatile storage hierarchy, wherein accessing information in the first level consumes more energy than accessing information in the second level; and  
a processor for writing information storing only strategically selected storage data in to the second level of non-volatile storage based on energy-conserving criteria.
2. (previously presented) The system of claim 1 wherein the energy-conserving criteria comprise a collection of heuristics.
3. (previously presented) The system of claim 1 wherein the energy-conserving criteria comprise system state information.
4. (previously presented) The system of claim 3 wherein the system comprises a storage input/output subsystem and system state information comprises whether the storage input/output subsystem is using one or more specific files.

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5. (previously presented) The system of claim 3 wherein the system state information comprises at least one factor from among the following factors:

the storage input/output associated with one or more predetermined software applications;

a sequence of storage input/output operations;

observed interactions with the first level of the storage hierarchy and wherein the collection of heuristics infer the state of the second level of the storage hierarchy; and

a type of energy source powering the system.

6. (previously presented) The system of claim 1 further comprising a power source for the system and wherein the system state information comprises information identifying the amount of energy left in the power source when the system is disconnected from other sources of energy.

7. (previously presented) The system of claim 3 wherein the system stores current user profiles and the system state information comprises whether storage input/output data are associated with a current user profile.

8. (previously presented) The system of claim 3 wherein the system stores current user preferences and the system state information comprises whether storage input/output data are associated with current user preferences.

9. (previously presented) The system of claim 3 wherein the system state information comprises at least one factor from among the following factors:

the storage input/output data associated with the characteristics of the connection between the first and second levels of the storage hierarchy;

the storage input/output data associated with characteristics of the connection between the system and at least one second level of the storage hierarchy;

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the proximity of the storage input/output to events that change the state of the at least one first level of the storage hierarchy;

the proximity of the storage input/output to a previous interaction with at least one first level of storage hierarchy;

an indication of a hard-disk drive spin-down event; and

physical characteristics of the second levels of the storage hierarchy.

10. (previously presented) The system of claim 3 wherein the system state information comprises physical characteristics of the second levels of the storage hierarchy.

11. (previously presented) The system of claim 1 wherein the second levels of the storage hierarchy are implemented using Flash memory.

12. (previously presented) The system of claim 3 wherein the system state information comprises the number of remaining write cycles.

13. (previously presented) The system of claim 1 wherein the processor is for removing information from the second level of storage based on energy-conserving criteria.

14. (previously presented) The system of claim 1 wherein writing information to the second level of storage further comprises:

a mapping schema between cache files in the second level of storage and disk files in the first level of storage, wherein each cache file is named with a logical cluster number of its corresponding disk file.

15. (currently amended) The system of claim 1, comprising a hard disk drive comprising rotating magnetic media comprising the first level storage and a cache comprising the second level storage and an application-specific integrated circuit for managing the cache according to the energy-conserving criteria.

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15. (cancelled)

16. (currently amended) An information handling system, comprising:  
first level non-volatile storage for storing information;  
second level non-volatile storage for storing information according to a set of energy-saving criteria;  
a battery level detector for determining the level of charge in a battery; and  
a controller for ~~writing information to~~ storing only strategically selected storage data in the second level of storage when the battery level detector determines that the battery charge is below a pre-determined threshold of charge.

17. (currently amended) A method for managing storage of information in an information processing system comprising two levels of non-volatile storage wherein a first level is managed and a second level is unmanaged wherein storing information in managed storage consumes less system resources than storing information in unmanaged storage, the method comprising:

monitoring the system to determine whether the operating state of the system satisfies one or more energy-conserving criteria; and  
storing ~~information~~ storing only strategically selected storage data in managed storage when the operating state of the system satisfies one or more energy-conserving criteria.

18. (currently amended) A computer readable medium comprising program instructions for:  
monitoring a system to determine whether the operating state of the system satisfies one or more energy-conserving criteria; and  
storing ~~information~~ storing only strategically selected storage data in managed non-volatile storage when the operating state of the system satisfies one or more energy-conserving criteria.

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19. (currently amended) An information handling system, comprising:  
first and second levels of non-volatile storage, wherein accessing the first level of storage uses more energy than accessing the second level of storage;  
an energy use detector for determining the level of energy being used by the system; and  
an arbiter for ~~writing information to~~ storing only strategically selected storage data in second level storage when the energy use detector determines that the system is being powered by a battery.